

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or Agent's file reference	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP 03/51003	International filing date (day/month/year) 15.12.2003	Priority date (day/month/year) 17.12.2002
International Patent Classification (IPC) or national classification and IPC H04L27/26		
Applicant THALES et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 7 sheets including this title page.
 

☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Instruction 607 of Administrative Instructions of the PCT).

These annexes consist of a total of          sheets.

3. This report contains indications relating to the following items:
 

I    ☒ Basis of the report

II   ☐ Priority

III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

IV ☐ Lack of unity of invention

V    ☒ Reasoned statement according to Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

VI ☐ Certain documents cited

VII ☐ Certain defects in the international application

VIII ☐ Certain observations on the international application

Date of submission of the demand 05.07.2004	Date of completion of this report 07.02.2005
<b>Name and mailing address of the IPEA</b>  <div style="display: flex; align-items: center;"> <div>             European Patent Office - P.B. 5818 Patentlaan 2              NL-2280 HV Rijswijk - Netherlands              Tel. +31 70 340-2040 Tx: 31 651 epo nl              Fax: +31 70 340-3016           </div> </div>	<b>Authorized officer:</b>  <div style="display: flex; justify-content: space-between; align-items: center;"> <div>             Marselli, M               Telephone No. +31 70 340-4117           </div> </div>

**I. Basis of the report**

1. This report has been drawn up on the basis of the following elements *(the replacement sheets received by the receiving office in response to an invitation according to Article 14 are considered in the present report as "originally filed" and are not annexed to the report as they contain no amendments (Rules 70.16 and 70.17).):*

**Description, pages:**

1-9 as originally filed

**Claims, No.:**

1-15 as originally filed

**Drawings, sheets:**

1/3-3/3 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

☐ the description, pages:

☐ the claims, Nos.:

☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/EP 03/51003

5. ☐ This report has been written disregarding (some of) the amendments, which were considered as going beyond the description of the invention, as filed, as is indicated below (Rule 70.2(c)):

*(All replacement sheets comprising amendments of this nature should be indicated in point 1 and attached to this report).*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty	Yes:	Claims	3 4 6 7 10-15
	No:	Claims	1 2 5 8 9
Inventive Step	Yes:	Claims	3 4
	No:	Claims	1 2 5-15
Industrial Applicability	Yes:	Claims	1-15
	No:	Claims	

**2. Citations and explanations**

**see separate sheet**

**Concerning point V**

**Reasoned statement as to novelty, inventive step and industrial applicability;  
citations and explanations in support of this statement.**

**1. Documents**

- 1.1 The present notification makes mention of the following documents cited in the search reports.

**D1:** WO 00/31939 A (VAEAENAENEN JANNE; LAAMANEN HEIKKI (FI); TELLABS OY (FI)) June 2 2000 (2000-06-02)

**D2:** GB-A-2 271 693 (MOTOROLA ISRAEL LTD) April 20 1994 (1994-04-20)

**D3:** WONG C Y ET AL: "MULTIUSER OFDM WITH ADAPTIVE SUBCARRIER, BIT, AND POWER ALLOCATION" IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATIONS, IEEE INC. NEW YORK, US, vol. 17, no. 10, October 1999 (1999-10), pages 1747-1758, XP000854075 ISSN: 0733-8716

**D4:** LASSALLE R ET AL: "PRINCIPLES OF MODULATION AND CHANNEL CODING FOR DIGITAL BROADCASTING FOR MOBILE RECEIVERS" EBU REVIEW-TECHNICAL, EUROPEAN BROADCASTING UNION.

BRUSSELS, BE, no. 224, August 1 1987 (1987-08-01), pages 168-190, XP000560523 ISSN: 0251-0936

**2. Novelty and inventive step - Article 33(2) PCT - Article 33(3) PCT**

- 2.1 The present patent application does not fulfil the conditions stated in article 33(1) PCT, the subject matter of **claims 1 and 8** not complying with the novelty criterion defined by article 33(2) PCT.

Using the terminology of **claim 1** of the present application, **document D1** describes (the references between brackets apply to this document):

A method of modulating a digital signal of width L in frequency on a given useful frequency band (page 1, lines 4-6) characterized in that it comprises the following

steps:

a separation of the digital signal into N blocks  $b_n$  (page 3, lines 1-2; Figure 3),  
a splitting of the given useful frequency band into N contiguous parts  $P_n$  (page 1, lines 4-6; Figure 2),  
a definition of channels  $C_n$ , of width  $I_n$  in frequency, lying within an associated part  $P_n$ , the channels  $C_n$  being separated (page 2, lines 23-24; Figure 2 on the left),  
a distributing of each block of digital signals  $b_n$  over the associated channel  $C_n$  (page 3, line 3; Figure 3).

The subject of **claim 1** is therefore not novel (Article 33(2) PCT).

- 2.2 The same reasoning applies, mutatis mutandis, to the subject matter of **claim 8**.
- 2.3 The subject matter of **claims 1 and 8** is described also in **document D2**, page 1, lines 27-36; page 2, lines 1-7; Figures 1 and 2.
- 2.4 Dependent **claims 2, 5-7, resp. 9-15**, contain no additional characteristics which, in combination with the characteristics of **claim 1, resp. 8**, are novel or involve an inventive step.

The subject matter of **claim 2** is described in **document D1**, page 2, lines 24-25.

The subject matter of **claim 5** is described in **document D2**, page 2, lines 28-29.

The subject matter of **claim 6** is not inventive since the separation of the digital signal into  $N=2$  blocks constitutes a design choice, which differs from the example in **document D2**, Figure 2, only in that the number of blocks is  $N=2$  instead of  $N=4$ .

The subject matter of **claim 7** is not inventive since the present patent application relates to the embodiment of a multicarrier modulator and the system defined here does not relate to properties or effects specific to transmission on the FM band.

The subject matter of **claim 9** is described in **document D1**, page 3, lines 6-12 and Figure 3.